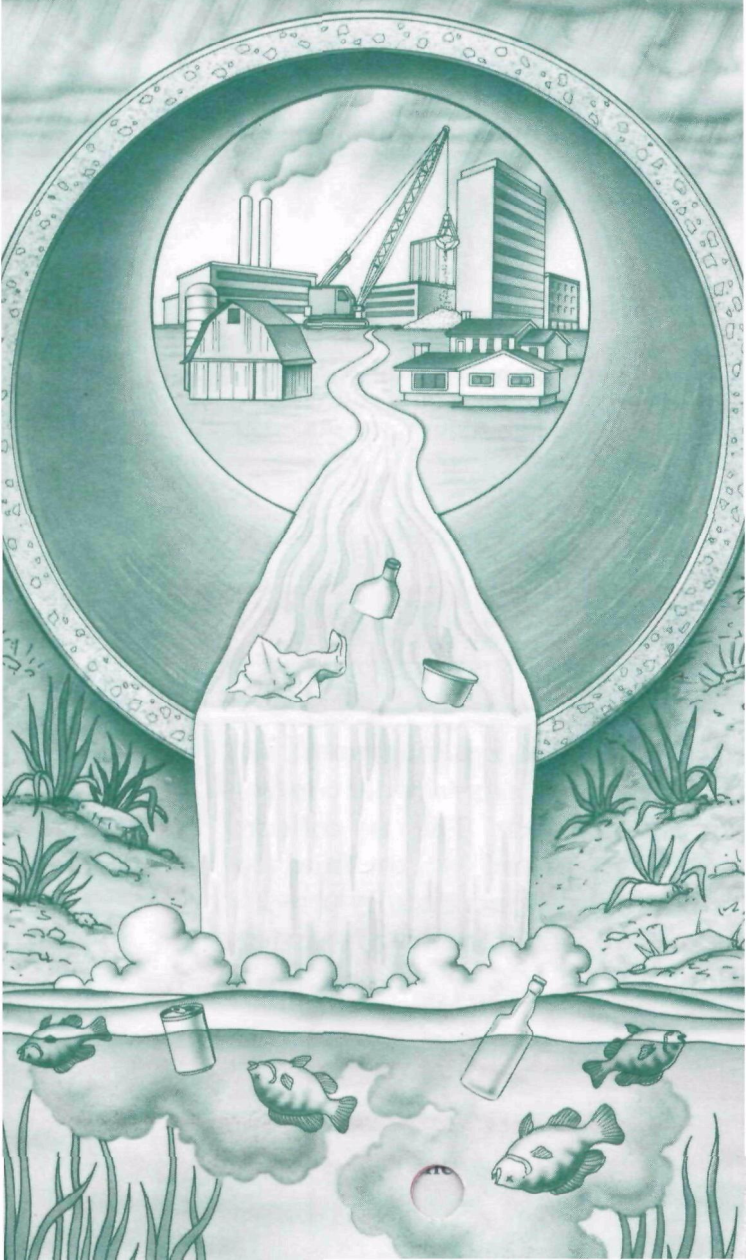
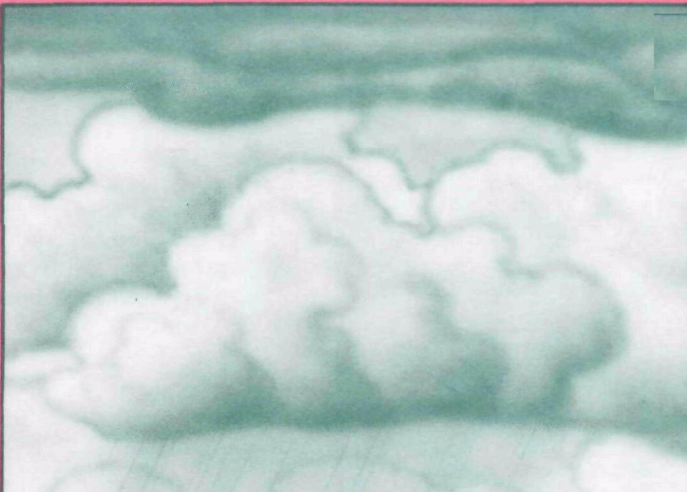




When It Rains, It Drains

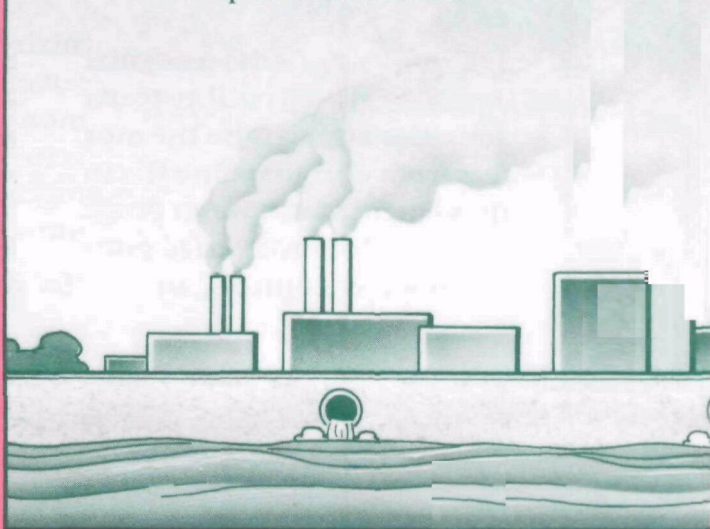
What Everyone Should
Know About Storm Water



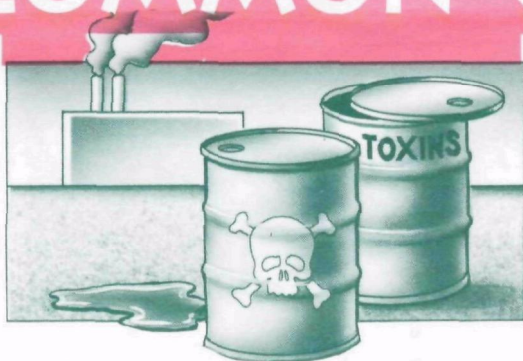


WHAT IS STORM WATER?

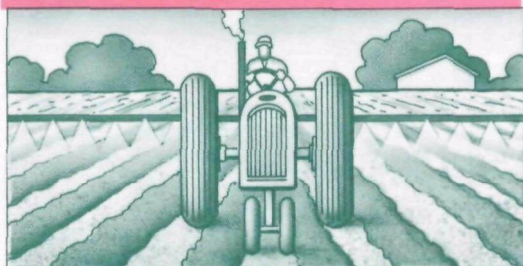
Storm water is water from precipitation that flows across the ground and pavement when it rains or when snow and ice melt. The water seeps into the ground or drains into what we call storm sewers. These are the drains you see at street corners or at low points on the sides of your streets. Collectively, the draining water is called storm water runoff and is a concern to us in commercial and industrial sites as well as your neighborhood because of the pollutants it carries.



COMMON CO



INDUSTRY – At industrial sites, chemical spills that contain toxic substances, smoke stacks that spew emissions, and uncovered or unprotected outdoor storage or waste areas can contribute pollutants to storm water runoff.

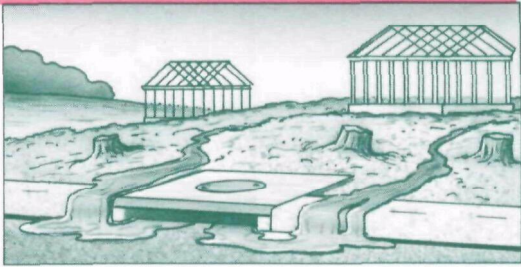


AGRICULTURE – Pesticides, fertilizers, and herbicides used in crop production can be toxic to aquatic life and can contribute to over-enrichment of the water, causing excess algae growth and oxygen depletion. Although storm water runoff from agricultural areas is not regulated under the EPA storm water permitting program, it is a nonpoint source of storm water pollution covered under other EPA programs.

WHAT ARE SOME OF THEIR EFFECTS ON PLANTS, ANIMALS, AND HUMANS?

When polluted storm water runoff reaches our waterways, it can have many adverse effects on aquatic plant and animal life, other wildlife that use the water, humans who drink the water, use it for

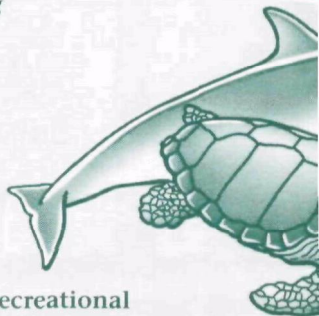
CONTRIBUTORS TO



CONSTRUCTION – Waste from chemicals and materials used in construction can wash into our waterways during wet weather. Soil that erodes from construction sites can contribute to environmental degradation as well.

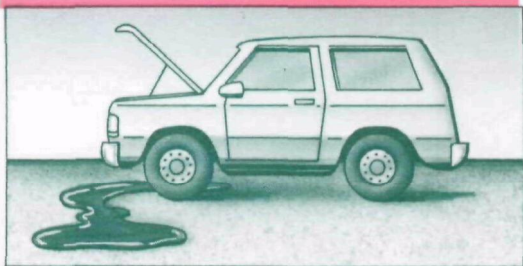


Sediment and other debris clog fish gills, damage fish habitat, and block the light needed for the plants to survive.



ing, boating, swimming and other recreational activities, and on humans and animals who eat the contaminated fish and other seafood.

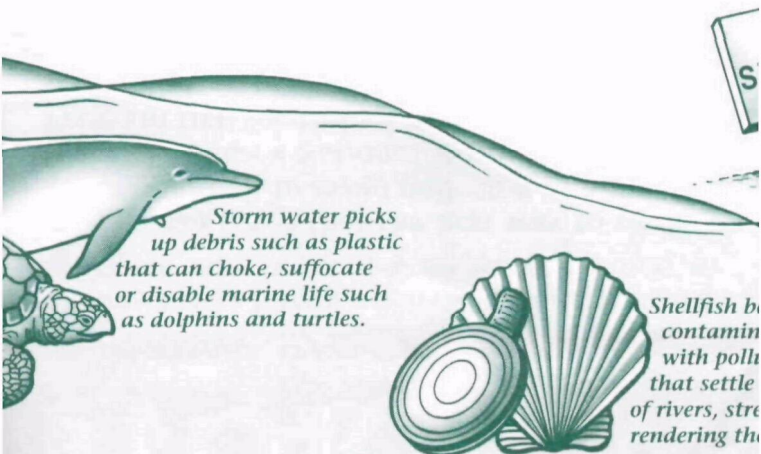
O STORM WATER



HOUSEHOLD – Vehicles drip fluids (oil, grease, gasoline, antifreeze, brake fluids, etc.) onto paved areas where storm water runoff carries them through our storm drains and into our waterways.



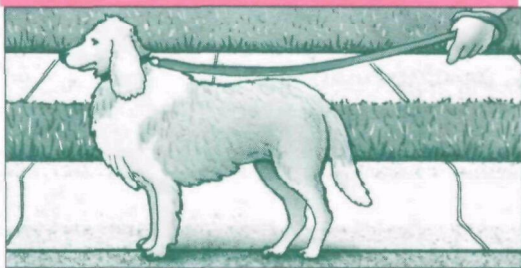
HOUSEHOLD – Chemicals used to grow and maintain beautiful lawns and gardens, if not used properly, can run off into the storm drains when it rains or when we water our lawns and gardens.



Storm water picks up debris such as plastic that can choke, suffocate or disable marine life such as dolphins and turtles.

Shellfish become contaminated with pollutants that settle at the bottom of rivers, streams, rendering them unsafe for consumption.

ER POLLUTION



HOUSEHOLD – Pet wastes left on the ground get carried away by storm water, contributing harmful bacteria, parasites and viruses to our waterways.

OTHER COMMON HOUSEHOLD PRODUCTS THAT COULD CAUSE POLLUTION IF CARRIED OFF BY STORM WATER RUNOFF OR DUMPED DOWN STORM SEWERS:

- Ammonia-based cleaners, drain cleaners
- Car care products such as detergents with phosphate and car waxes
- Paint, paint thinners, varnish, furniture refinishing products, paint brush cleaners
- Concrete or wood sealants
- Degreasers
- Chlorine bleaches and disinfectants (for swimming pools, etc.)



If storm water contaminates our rivers, lakes, and oceans, we will no longer be able to use them as recreational areas.

Contaminants to the bottoms of rivers, lakes, and oceans, making shellfish inedible.

Storm water can contribute to pollution of our water supplies, making monitoring and treatment of our drinking water more difficult and more costly.



WHAT CAN I DO TO HELP ?

First, become more aware of what may be causing storm water pollution in your area.

Second, help your municipality by:

1. Reporting to your local municipal officials -
 - Any dumping of inappropriate materials into storm water drains (such as oil, antifreeze).
 - Construction sites over 5 acres that do not have erosion or sediment controls.
2. Using good housekeeping practices with lawn care chemicals, oil, gasoline, pet wastes, etc.
3. Helping to start or participating in programs to recycle and safely dispose of used oil and household hazardous wastes and containers.
4. Telling others about pollution from storm water runoff and what they can do to help.



Debris along street picked up by storm water.

WHY IS STORM WATER A PROBLEM?

Storm water is a problem when it picks up debris, chemicals, and other pollutants as it flows or when it causes flooding and erosion of stream banks. The pollutants are deposited untreated into our waterways. The result can be the closing of our beaches; no swimming, fishing or boating; and injury to the plants and animals that live in or use the water.

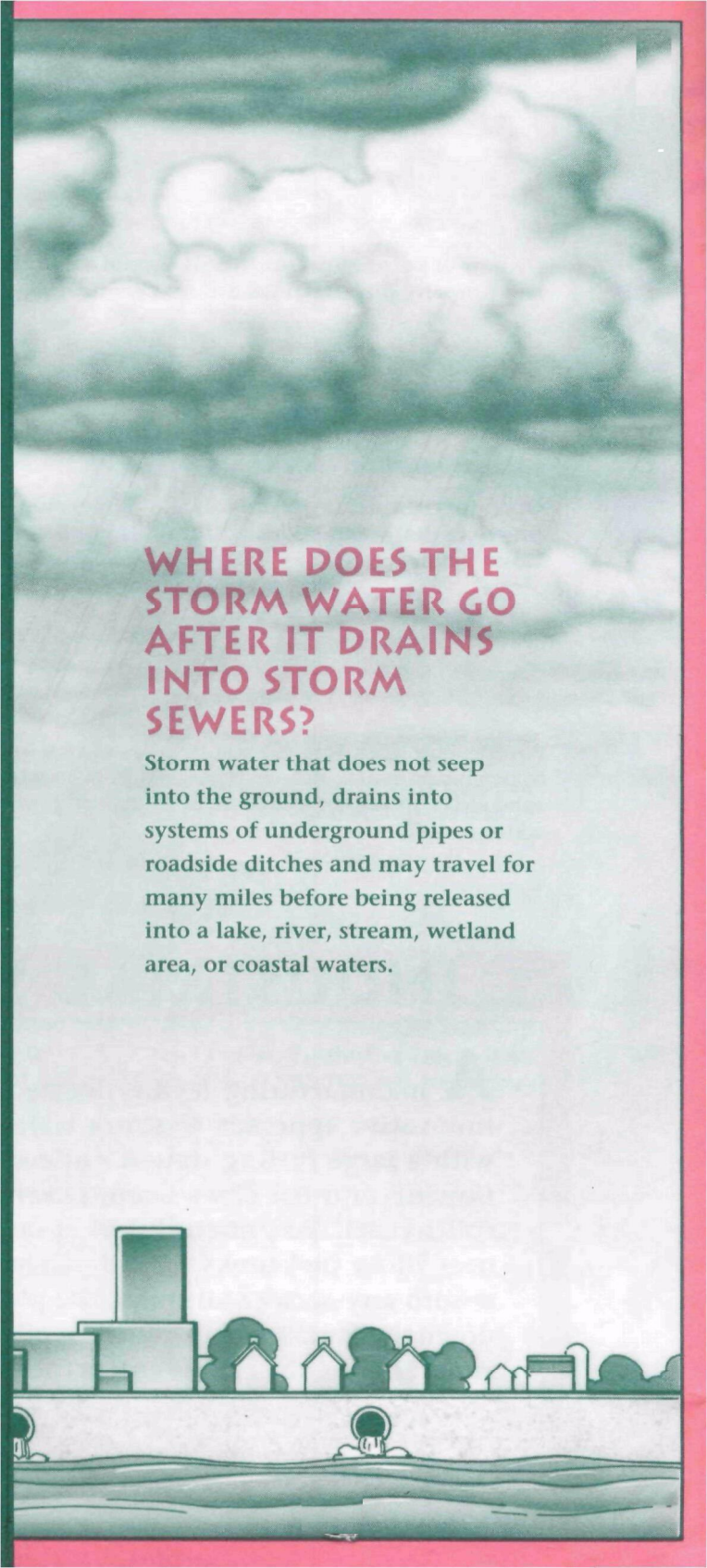
WHAT ARE THESE POLLUTANTS? WHERE DO THEY COME FROM ? WHAT ARE SOME OF THEIR EFFECTS ON PLANTS, ANIMALS, AND HUMANS ?

The following information will answer these questions and let you know what you and your community can do to help recognize where there could be a problem and what to do to help solve it !

EPA has a storm water program that, with your help, can keep our rivers, lakes, streams, and oceans open to use and enjoyment, and healthy for plants and animals to live in.

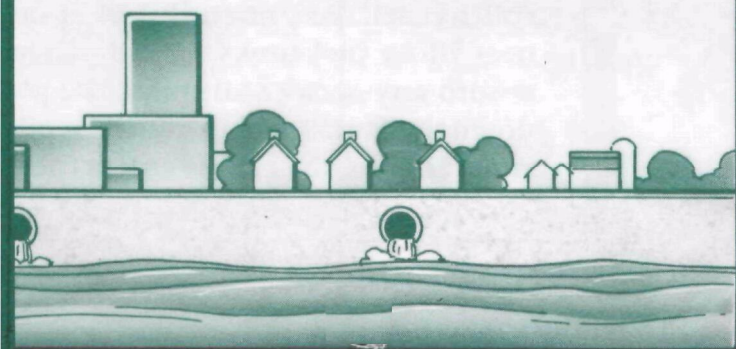


Debris washed on the beach by storm water.



WHERE DOES THE STORM WATER GO AFTER IT DRAINS INTO STORM SEWERS?

Storm water that does not seep into the ground, drains into systems of underground pipes or roadside ditches and may travel for many miles before being released into a lake, river, stream, wetland area, or coastal waters.



WHERE CAN I FIND OUT MORE INFORMATION?

Your EPA Regional Office (Water Management Division)

1. EPA Region I (CT, ME, MA, NH, RI, VT)
JFK Federal Bldg.; Boston, MA 02203
617-565-3478
2. EPA Region II (NJ, NY, PR, VI)
26 Federal Plaza; New York, NY 10278
212-264-2513
3. EPA Region III (DE, MD, PA, VA, WV, DC)
841 Chestnut Street; Philadelphia, PA 19107
215-597-9410
4. EPA Region IV (AL, GA, FL, MS, NC, SC, TN, KY)
345 Courtland St., NE; Atlanta, GA 30365
404-347-4450
5. EPA Region V (IL, IN, OH, MI, MN, WI)
77 W. Jackson Blvd.; Chicago, IL 60604
312-353-2145
6. EPA Region VI (AR, LA, OK, TX, NM)
1445 Ross Ave., Suite 1200
Dallas, TX 75202-2733
214-655-7100
7. EPA Region VII (IA, KS, MO, NE)
726 Minnesota Ave.; Kansas City, KS 66101
913-551-7030
8. EPA Region VIII (CO, UT, WY, MT, ND, SD)
999 18th St., Suite 500; Denver, CO 80202
303-293-1542
9. EPA Region IX (AZ, CA, GM, HI, NV)
75 Hawthorne Street; San Francisco, CA 94105
415-744-2125
10. EPA Region X (AK, ID, OR, WA)
1200 Sixth Ave.; Seattle, WA 98101
206-553-1793

Other sources include:

- Storm Water Hotline (703) 821-4823
- State and Local Agencies



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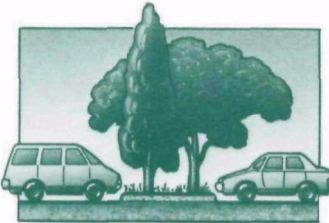
EPA NATIONAL

MUNICIPAL PROGRAM

Here are some of the most important steps your community can take to control storm water pollution:



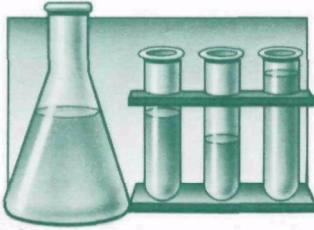
Prevent the release into the storm sewer system of hazardous substances such as used oil or household or yard chemicals



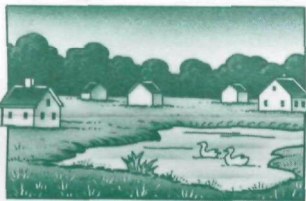
Make sure new commercial and residential developments include storm water management controls, such as reducing areas of paved surfaces to allow storm water to seep into the ground.



Promote practices such as street sweeping, limiting use of road salt, picking up litter, and disposing of leaves and yard wastes quickly.



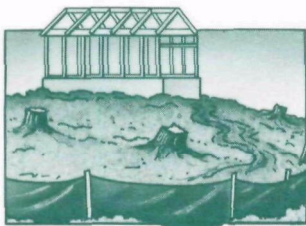
Collect samples of storm water from industrial sites to see whether pollutants are being released. If so, identify the type and quantity of pollutants being released.



Design and institute flood control projects in a way that does not impair water quality.



Prevent runoff of excess pesticides, fertilizers, and herbicides by using them properly and efficiently. (Commercial, institutional, and residential landscapes can be designed to prevent pollution, conserve water, and look beautiful at the same time.)



Make sure that construction sites control the amount of soil that is washed off by rain into waterways.



Promote citizen participation and public group activity to increase awareness and education at all levels. Encourage local collection pick-up days and recycling of household hazardous waste materials to prevent their disposal into storm drains.

MUNICIPAL SUCCESS STORY

A northwest city, recognizing the need for storm water management, set up a special water utility to oversee all local government storm water control activities and to raise the money for storm water projects. The city collects fees from citizens using the storm water sewer system and uses the funds to implement storm water programs. The program is still successfully providing funds for such varied purposes as flood control, maintenance of existing storm water controls, and public education.

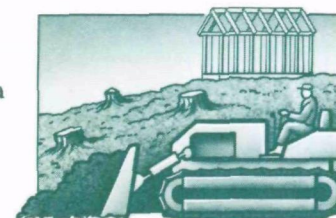
STORM WATER PROGRAM

We can agree that the best way to protect water quality is to avoid polluting it in the first place. EPA has a National Storm Water Permit Program that focuses on municipal and industrial pollution prevention to help control storm water pollution. This program involves issuing permits to certain municipalities and industries to control storm water pollution. Development of State and local storm water management programs can help to achieve the Clean Water Act goals of fishable and swimmable waters.

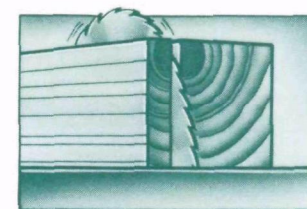
INDUSTRIAL PROGRAM

Storm water permits require many industrial facilities to prepare and implement storm water pollution prevention plans. Listed below are examples of industries and their pollution prevention activities.

Owners of construction sites that disturb 5 or more acres must develop a plan before beginning construction. The plan must limit the area of disturbed soil and provide controls — like sediment basins — to keep sediment from running off.



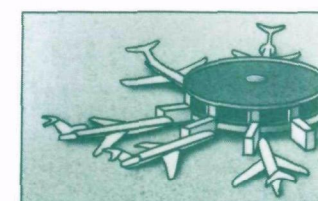
Operators of saw mills can reduce pollution by storing their materials and processing their products indoors; and removing any by-products from outdoor areas before these products come in contact with storm water runoff.



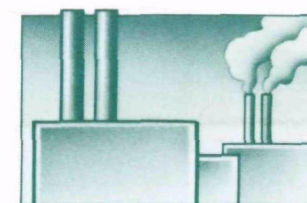
Operators of landfills should keep the storm water runoff from flowing over the pollutants and carrying them off the landfill site.



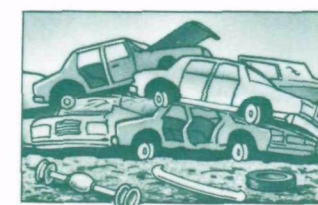
Airport employees can reduce storm water runoff pollution by using de-icing chemicals only in designated collection areas and by cleaning oil and grease spills from pavement immediately.



Chemical plant operators should develop spill prevention plans and use types of containers that do not rust or leak, eliminating exposure of materials to storm water runoff.



Owners of automobile junkyards should drain fluids from junked cars and properly dispose of hazardous chemicals.



MUNICIPAL PROGRAM



MUNICIPAL PROGRAM

Permits issued for municipal storm water systems allow communities to design storm water management programs that are suited for controlling pollutants in their own municipal systems. EPA hopes this flexibility will encourage community interest and participation in solving storm water runoff problems.

INDUSTRIAL PROGRAM

Most permits issued under the storm water program require development and use of a storm water pollution prevention plan. Such plans describe how the facility will prevent storm water from becoming polluted by making sure that:

- Potential pollutants are not left outside uncovered
- Spills are prevented
- If spills occur, they are cleaned up right away
- There is no dumping of polluting substances into storm drains
- Grass and other vegetation is planted as quickly as possible after soils are disturbed

Some permits may require more extensive pollution control.

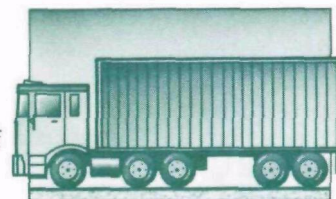
Chemical plant operators should develop spill prevention plans and use types of containers that do not rust or leak, eliminating exposure of materials to storm water runoff.



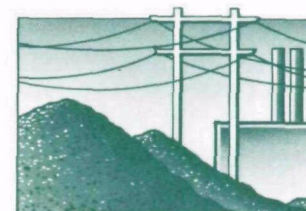
Owners of automobile junkyards should drain fluids from junked cars and properly dispose of hazardous chemicals.



Operators of trucking terminals should develop good housekeeping practices that clean up leaks and spills of oil and grease from the path of storm water runoff.



Power plant operators often store piles of coal and other fuels that have toxic components. Runoff from coal piles must be treated; other substances should be stored away from any possible contact with storm water runoff.



INDUSTRIAL SUCCESS STORY

A manufacturing facility located in a large midwestern city took an innovative approach to storm water management. Employees at a plant with a large fueling station noticed that during a rain storm, the runoff flowing into the city's storm sewer system had an oily sheen, caused by spilled fuel. To prevent future spills, the plant trained its drivers to avoid overfilling fuel tanks, laid down sawdust around the fueling station to absorb any accidental spills (the plant is careful not to wash the sawdust down the drain), and installed an oil/water separator to remove oil from the runoff before the runoff enters the storm drain.